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Docket No.: 2526/207-131

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MAIL STOP: APPEAL BRIEF-PATENTS

By: Markus Noll Date: July 3, 2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

Applicant : Friedhelm Beckmann

Applic. No. : 09/501,013

Filed : February 9, 2000

Title : Sound and Heat Insulation Material

Examiner : Norca Liz Torres-Velazquez

Art Unit : 1771

BRIEF ON APPEAL

Hon. Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an appeal from the final rejection in the Office action dated December 23, 2002, finally rejecting claims 1-22.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of \$160.00 (small entity) to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to *Möller Plast GmbH* of Bielefeld, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-22 are rejected and are under appeal. No claims were cancelled.

Status of Amendments:

No claims were amended after the final Office action. A Response under 37 CFR § 1.116 was filed on April 23, 2003. The Primary Examiner stated in an *Advisory Action* dated April 30, 2003, that the request for reconsideration had been considered but did not place the application in condition for allowance.

Summary of the Invention:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention

relates to a sound and heat insulation material for insulating buildings, motor vehicles, pipes, and the like. The sound and heat insulation material is made from fibers or similar substances to which a fire retardant is added.

Appellant explained on page 6 of the specification, line 16, that, referring now to the single figure in detail there is shown the core layer 1 of the sound and heat insulation material which is made from a fiber mat or fiber batt that is installed in a wave-like manner. The fiber mat is formed for example of a natural substance made of renewable raw materials and/or of mineral fibers and/or of synthetic fibers. This fiber mat is impregnated with nitrogen or borax as a fire retardant additive. On one external surface of the core material 1 there is a fiber layer 2 which is reactivateable at 300°C and which has a thickness "a". On the opposite exterior surface there are two reactivateable fiber layers 3 and 4 of different thicknesses "b" and "c" which foam up at 150°C and 300°C, respectively. The fiber layers 2, 3, and 4 are made from a woven or knit fabric with differing area weights of foamable fibers 5. The foamable fibers can also be made of a different material which is self-extinguishing. Optionally, a variable proportion of foamable fibers can be added to the core material 1. Instead of using a woven or knit fabric, the fiber layers 2 to 4 can also be

made from scattered, cut fibers. In this case, the foamable fibers have different reaction temperatures. In order to form a cohesive mat or a composite mat out of the core material, it is possible to apply a foil, a sheet, cardboard, or similar facings to one or both sides.

Appellant outlined on page 7 of the specification, line 15, that, at temperatures above 150°C and 300°C, respectively, the reactive, foamable material is reactivated, which means that it foams up so that the oxygen present in the fiber layers 2 to 4 or in the fibers themselves is not available for a combustion process and no oxygen can penetrate into the core material 1, that is, into the core layer. Since the core material 1 is completely insulated from the exterior by the foaming of the fiber layers 2 to 4 under the action of heat, the inflammation temperature is not reached there, and moreover, the oxygen present in the core layer is not available for a combustion.

It is described in the last paragraph of the specification, starting on page 8, line 1, that, in this way, a sound and heat insulation material is produced that provides good insulation properties with its exterior and interior fiber layers and that is difficult or impossible to ignite and

virtually eliminates the possibility of producing toxic gases.

References Cited:

U.S. Patent No. 3,934,066 (*Murch*), dated January 20, 1976.

Issues

Whether or not claims 1-22 are obvious over *Murch* under 35 U.S.C. §103.

Grouping of Claims:

Claim 1 is independent. Claims 2-22 depend on claim 1. The patentability of claim 2 is separately argued. The patentability of claims 3-22 is not separately argued. Therefore, claims 3-22 stand or fall with claim 1 but claim 2 does not stand or fall with claim 1.

Arguments:

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, *inter alia*:

a **core layer** including fibrous material and having at least one **outer** surface, said fibrous material being provided with a fire retardant additive; and

a **covering layer** including a foamable material **covering** **said core layer** at said at least one **outer** surface, said foamable material being at least difficult to ignite and foaming at a given temperature to insulate said core layer from high temperature and oxygen.

On page 2 of the *Advisory Action* the Examiner stated that:

MURCH reference teaches the use of flameproofed textile materials in the protective cover layer (this equates to the core layer) and a [sic] intumescent layer (that equates to the covering layer). The reference teaches that the characteristic feature of all intumescent coatings is that the intumescent composition, upon exposure to heat or flame, swells or puffs up to a relatively thick cellular foam char which possesses heat-insulative and fire-retardant properties. (Refer to Column 8, lines 23-31; Column 1, lines 15-30).

The Examiner equated the "core layer" of the present invention with the "protective [cover] layer 12" of *Murch*, and the "covering layer" of the present invention with the "intumescent layer 11" of *Murch*.

Col. 2, lines 39-53, *Murch* states:

Referring to FIG. 1 of the drawing, there is shown the intumescent laminate system 10 comprised of an intumescent layer 11 which is a porous sheet material such as paper impregnated with an intumescent composition. Adhered to the intumescent layer 11 is a flexible protective layer 12 which is capable of yielding or deforming with or without rupture under conditions of fire or heat so that the intumescent

composition can freely expand and swell to the desired necessary thickness.

FIG. 2 shows another embodiment of the intumescent laminate system wherein an adhesive layer 13, e.g., pressure-sensitive adhesive, is bonded to the **inner surface of the intumescent layer 11**. Such a laminate may be applied directly to the surface to be protected.

(emphasis added)

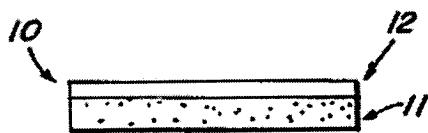
Col. 7, lines 55-57, Murch states:

A protective cover layer is applied to the **outer surface of the intumescent layer**. This **outer protective layer** must be composed of a flexible material.

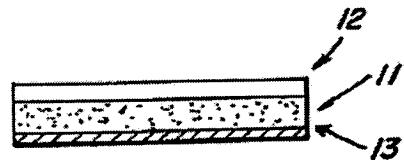
(emphasis added)

Figs 1 and 2 are re-produced below:

*FIG. 1*



*FIG. 2*



The claims of the instant application recite a core layer with an outer surface, and a cover layer covering the outer surface of the core layer from high temperature and oxygen.

According to THE COMPACT OXFORD ENGLISH DICTIONARY, 2<sup>nd</sup> edition (1991), page 337, sub-page 929 (copy thereof is enclosed), a "core" is defined as "[a] central part of

different character from what which surrounds it", "[t]he interior part of a wall or column".

According to the rules of statutory and claim interpretation, the terms "core" and "cover" in the claims must be given a meaning.

Consequently, the "core layer" of the present invention can only be equated with the "intumescence layer 11" of *Murch*, and the covering layer can only be equated with the "cover layer 12" of *Murch*.

The characteristics and properties of the "protective cover layer 12" is disclosed in detail in *Murch* between col. 7, line 55, through col. 9, line 4. There is no disclosure or suggestion in *Murch* that the "protective cover layer" is foamable and foams at a given temperature to insulate the core, unlike the present invention as recited in the claims.

There is no disclosure in *Murch* that the "intumescence layer 11" contains a fire retardant additive. *Murch* only discloses that the "intumescence layer 11" has (inherent) fire-retardant properties (see for example col. 1, lines 19-20, lines 37-38). The disclosure in *Murch* suggests that the fire-retardant properties of the "intumescence layer 11" is due to

the foaming of the intumescent component in the "intumescent layer 11" and not due to a fire retardant additive *per se*.

Accordingly, it is believed that *Murch* shows neither a foamable covering layer nor a core layer containing a fire retardant additive, as recited in claim 1 of the instant application. Consequently, the invention as recited in claim 1 of the instant application is believed not to be anticipated by *Murch*.

Dependent claim 2 recites "at least one further foamable material, said at least one further foamable material being foamable at a further given temperature different from said given temperature." There is no disclosure or suggestion in *Murch* of a further foamable material as recited in claim 2. Consequently, the invention as recited in claim 2 of the instant application is believed not to be anticipated by *Murch*.

The inventive concept of the invention of the instant application is to produce an insulation material using a foamable cover layer to cover a core layer containing a fire retardant additive. When subjected to heat, the foamable cover layer foams, thereby, insulating the core layer from high temperatures and oxygen. Since the core layer is

completely insulated from the exterior by the foaming, the inflammation temperature is not reached and no oxygen, can reach the core layer. In contrast, the inventive concept of *Murch* is to protect an intumescent layer from leaching out the intumescent component by placing a protective layer on top of the intumescent layer.

It is accordingly believed to be clear that *Murch* does not show the features of independent claim 1 and dependent claim 2. Claims 1 and 2, therefore, believed to be patentable over the art and because claims 3-22 are ultimately dependent on claim 1, they are believed to be patentable as well.

The honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,

  
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For Appellants

MN/bb

Date: July 2, 2003  
Lerner and Greenberg, P.A.  
Post Office Box 2480  
Hollywood, Florida 33022-2480  
Tel: (954) 925-1100  
Fax: (954) 925-1101

Appendix - Appealed Claims:

1. A sound and heat insulation material, comprising:

a core layer including fibrous material and having at least one outer surface, said fibrous material being provided with a fire retardant additive; and

a covering layer including a foamable material covering said core layer at said at least one outer surface, said foamable material being at least difficult to ignite and foaming at a given temperature to insulate said core layer from high temperature and oxygen.

2. The sound and heat insulation material according to claim 1, including at least one further foamable material, said at least one further foamable material being foamable at a further given temperature different from said given temperature.

3. The sound and heat insulation material according to claim 1, wherein:

said core layer is a heat insulation mat and said fibrous material includes at least one element selected from the group consisting of natural fibers, mineral fibers and synthetic fibers; and

said covering layer includes at least one of a foil and a fiber layer.

4. The sound and heat insulation material according to claim 3, wherein said one of said foil and said fiber layer is impregnated with said foamable material.

5. The sound and heat insulation material according to claim 3, wherein said one of said foil and said fiber layer has a surface-active coating.

6. The sound and heat insulation material according to claim 3, wherein said fiber layer is one of a woven fabric and a knit fabric, said fiber layer includes fibers formed of said foamable material.

7. The sound and heat insulation material according to claim 3, wherein said fiber layer is one of a woven fabric and a knit fabric, said fiber layer includes fibers coated with said foamable material.

8. The sound and heat insulation material according to claim 3, wherein said fiber layer is one of a woven fabric and a knit fabric, said fiber layer includes fibers sprayed with said foamable material.

9. The sound and heat insulation material according to claim 1, wherein said covering layer includes at least one foamable fiber layer having cut, foamable fibers scattered directly onto said core layer, said cut, foamable fibers having a given length and a given cross-sectional diameter.

10. The sound and heat insulation material according to claim 1, wherein said covering layer includes at least one foamable fiber layer having at least one element selected from the group consisting of synthetic material, natural material, renewable material, carbon fibers and glass fibers.

11. The sound and heat insulation material according to claim 1, wherein said foamable material is self-extinguishing, said covering layer includes fibers made from said foamable material.

12. The sound and heat insulation material according to claim 1, wherein said at least one outer surface includes a first and a second outer surface, said first outer surface covered by a first material layer foamable at a first temperature, said second outer surface covered by a second material layer foamable at a second temperature different from said first temperature.

12. The sound and heat insulation material according to claim 1, wherein said at least one outer surface includes a first and a second outer surface, said first outer surface covered by a first material layer reactivateable at a first temperature, said second outer surface covered by a second material layer reactivateable at a second temperature different from said first temperature.

13. The sound and heat insulation material according to claim 12, wherein at least one of said first and second material layers is a fiber layer.

14. The sound and heat insulation material according to claim 12, wherein said first material layer has a first layer thickness, said second material layer has a second layer thickness different from said first layer thickness.

15. The sound and heat insulation material according to claim 1, wherein said at least one outer surface includes a given outer surface, said given outer surface is covered by a first material layer foamable at a first temperature and at least by a second material layer foamable at a second temperature different from said first temperature.

16. The sound and heat insulation material according to claim 15, wherein at least one of said material layers is a fiber layer.

17. The sound and heat insulation material according to claim 15, wherein said first material layer has a first layer thickness, said at least second material layer has a second layer thickness different from said first layer thickness.

18. The sound and heat insulation material according to claim 1, wherein said core layer has substantial heat and sound insulation properties and said fibrous material includes at least one element selected from the group consisting of synthetic fibers, natural fibers, renewable fibers, glass fibers, mineral fibers and carbon fibers.

19. The sound and heat insulation material according to claim 18, wherein said fibrous material of said core layer is coated with a further foamable material.

20. The sound and heat insulation material according to claim 18, wherein said fibrous material of said core layer includes foamable fibers.

21. The sound and heat insulation material according to claim 1, including one of a foil, a cardboard, and a sheet-like material attached to said at least one outer surface for producing a mat configuration.

22. The sound and heat insulation material according to claim 1, wherein said foamable material is a non-flammable material.

